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More power to personality

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More power to personality (and guess what, it's for free)

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Personality ubiquitously predicts real things in real life in real people

- Academic and socioeconomic success
- Relationship quality
- (Anti)social behaviour
- Health and longevity

*Personality pervasively taints our everyday experiences and
thereby life-course development*

But typical findings are sometimes boring

- Because of low specificity:
 - Desirable outcomes tend to hang with desirable traits

Five-Factor Model (FFM)

	Education	Health-aware diet	Relationship satisfaction
Neuroticism	-0.16	-0.12	-0.22
Extraversion	0.13	0.16	0.06
Openness	0.12	0.17	0.03
Agreeableness	0.08	0.03	0.15
Cosncientiousness	0.13	0.11	0.12

But the FFM traits brake down to facets

- And facets often differ in how they link with outcomes

FFM-level findings correspond to different combinations of facets

	BMI	Aggression
Neuroticism	0.07	0.17
<i>Facets</i>		
<i>Anxiety</i>	<i>-0.01</i>	<i>-0.04</i>
<i>Angry Hostility</i>	<i>0.01</i>	0.21
<i>Depression</i>	<i>0.03</i>	<i>0.11</i>
<i>Self-Consciousness</i>	<i>0.03</i>	<i>0.01</i>
<i>Impulsiveness</i>	0.27	<i>0.08</i>
<i>Vulnerability</i>	<i>-0.02</i>	<i>0.10</i>

Benefits of facet-level analyses

- More predictive power
- Greater specificity (discriminant validity)

Positive-hangs-with-positive pattern at FFM-level



More informative patterns at facet level

Facets brake further down. To nuances

- Single personality test items contain unique signal (nuances)
 - Beyond what they contribute to measurement of facets
 - Items' unique variance trait-like: heritable, stable, agreed by raters

So why not use single test items for predicting outcomes?

- Even more predictive power and specificity?
- Questionnaire-Wide Association Study (QWAS)

Items less reliable? Maybe.

It's an empirical question

- Let's compare the predictive power of items, facets and traits

Less parsimonious? Maybe

- But often all we care about is predictive accuracy
 - No different if it comes from five traits or 41 items

And anyway, what do we do with the seemingly parsimonious finding that good traits hang with good stuff?

What if the trait-outcome associations *are* driven by nuances?

- Should we wish a fact of life away by imposing “parsimony”?

*What could matter is the **specific variance that items tap**, rather than whatever broad they are also intended to reflect*

Parallel with genetics: Phenotypes are polygenic

- Most phenotypes linked with thousands of genetic variants
 - Effect of most variants so small that not even reliably detectable
 - Aggregating them into polygenic scores allows for prediction

This works because we do not impose parsimony and use all available information!

What if outcomes are *polynuanced*?

Estonian Genome Bank

$N = 3,500$

- 11 outcomes:
 - Education, BMI, physical activity, eating habits, alcohol use, smoking
- Personality:
 - Five-Factor Model traits
 - 30 facets
 - 240 items

To avoid over-fitting and to truly predict

- Models trained and tested in independent people
 - $N = 2,000$ for model training
 - Regularized regression (LASSO)
 - Independent $N = 1,500$ for predicting the outcomes
 - Correlation between predicted and observed outcomes

True out-of-sample prediction, not just correlation!

Results

- Facets-models always outperform FFM traits
 - Average prediction increase 50%
- Item-models almost always outperform facet-models
 - Average prediction increase 46%

Items provided the best prediction across the board

Predictive specificity (discriminant validity)

- Can be estimated using the overlap among predicted outcome values
 - Least inter-correlated for item-models

Items provided highest discriminant validity

National Child Development Study

$N = 8,700$

- 44 diverse outcomes
- Model comparison:
 - Five-Factor Model traits vs their 50 items
- Item-models pervasively outperformed trait-models
 - Average prediction increase 28%
 - Higher discriminant validity

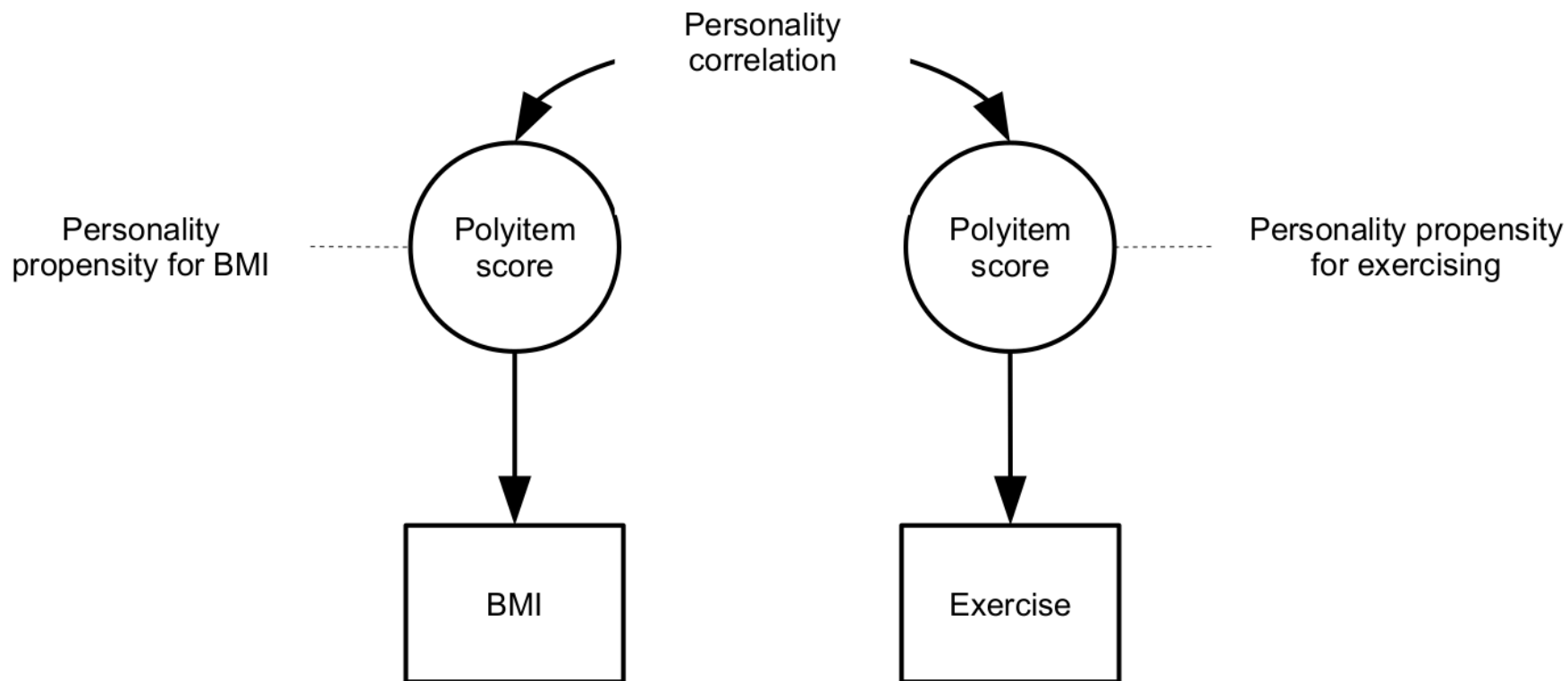
Bottom line: Items outperform trait scores. Bigly

- Most accurate prediction
- Most sensitive to outcomes' distinctive aspects
 - Rather than valence
 - Help against the all-positive-hangs-together pattern

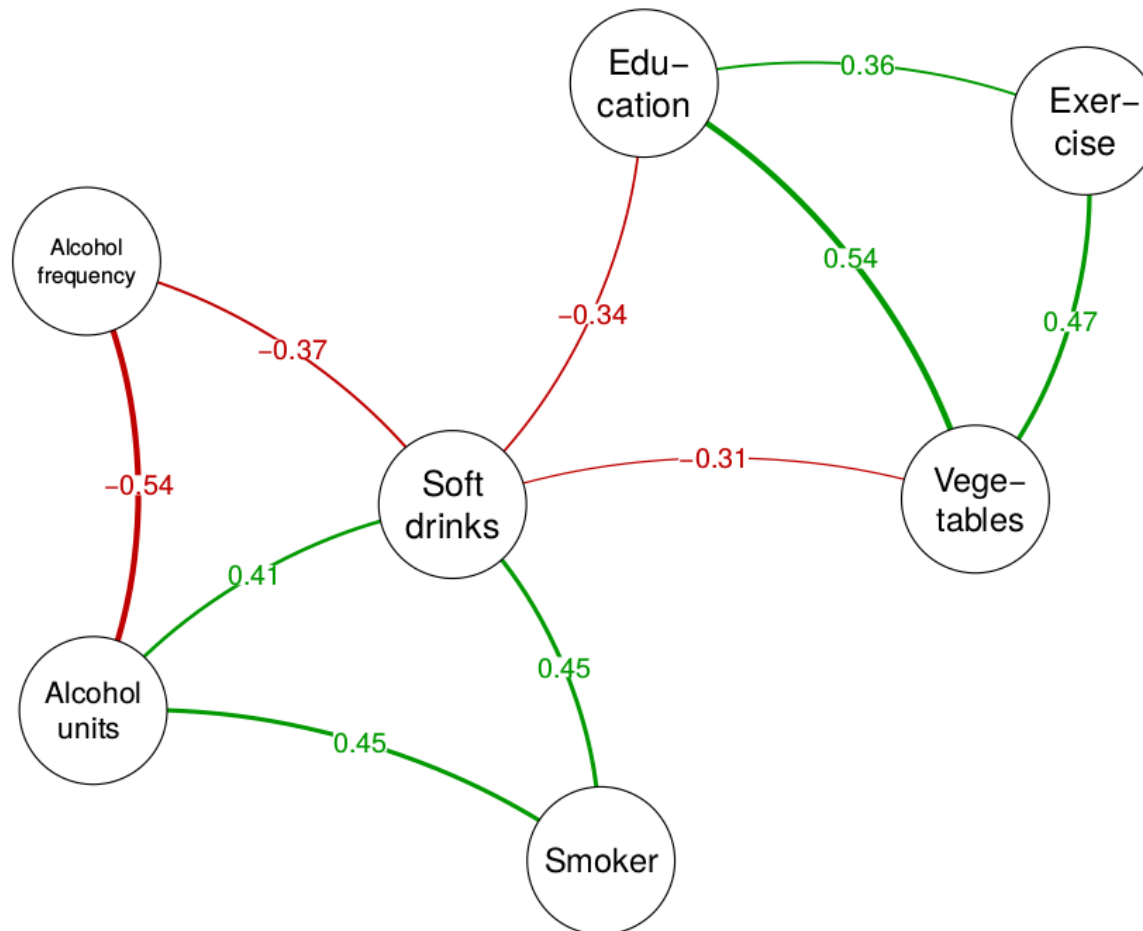
This leverage comes for free!

Personality correlations

- Extents to which outcomes overlap in personality correlates
- Similar to genetic correlations, widely used in genetics



Why do some outcomes hang together in the way they do?



Because they pertain to personality-wise (dis)similar people

**So personality may not only account for
the variance but also *co*-variance of life
outcomes**

European Journal of Personality

High Impact Factor (3.98)

Fast editorial process

(mostly < 40 days for reviewed papers)

No word limit

Focus on transparency

